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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/019,702

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David Lahiri Bhatoolaul

Bhatoolaul 4-

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10/18/2005

Lucent Technologies Inc
Docket Administrator Room 3C 512
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EXAMINER

ELALLAM, AHMED

ART UNIT

PAPER NUMBER

2668

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,702

Applicant(s)

BHATOOLAUL ET AL.

Examiner

AHMED ELALLAM

Art Unit

2668

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/27/01, 2/25/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The specification is missing the sub-titles, such as Background of the Invention, Brief Summary of the Invention, Brief Description of the Several Views of the Drawing(s), Detailed Description of the Invention.

In addition the specification has several typo errors, for example, page 5, paragraph 4, the term "downmlink" should be "downlink", page 8, paragraph 2, the term "feback" should be "feedback", the phrase "process of 54" need correction. Several other errors remains in the specification. Appropriate correction is required.

Claim Objections

2. Claims 2, 4, 6 and 13 objected to because of the following informalities:

In claim 2, the claimed "the common channel" lack antecedent basis.

In claims 4 and 13, the claimed "the common channels" lack antecedent basis.

Appropriate correction is required.

In claims 6 and 15, the claimed "the time offsets" and "the radio frames" lack antecedent basis.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 4, 6, 9, 11, 13 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 4 and 13, the specification does not adequately describe the claimed "combining static data transmitted on at least one of the common channels with the first and second sets of pilot symbols". The specification doesn't give any example of the static data and how the static data is combined with first and second sets of pilot symbols.

Regarding claims 6 and 15, the specification does not adequately describe the feature of "varying the time offsets between the radio frames in the dedicated pilot channel and at least one common channel". More specifically, the specification states "improving performance gain by adapting the time-offsets between the pilot symbols belonging to the common channel (s)... and the pilot symbols transmitted on the dedicated traffic channel(s)", page 13, paragraph 3. It follows that the specifications

does not describe having separate frames for the dedicated pilot channel(s) and common channels, and varying the offset time between such radio frames.

Regarding claim 9, for similar reason as indicated with reference to claims 6 and 15 above, the specification does not adequately describe the feature of “each base station is arranged to vary the time-offsets between radio frames of the dedicated traffic channel”.

Regarding claim 11, the specification does not disclose “the set of rake fingers arranged to receive the combined pilot symbols”. The specification discloses, with reference to figure 8, that the rake fingers are arranged to provide the pilot symbols of the common channel and the dedicated channel to the combining means 44 and not the opposite.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 3 and 12, it is not clear what is meant by the claimed “the pilot symbols from all common channels are combined”. More specifically, respective base claim 1 specify that the first and the second set of pilot symbols are combined, the second set of symbols being provided by at least one common control channel, it

follows that claims 3 and 12 do not specify if the combination of all symbols of common channels are also combined with the first set of symbols or not.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miya et al, US 6,400,700 in view of Jalloul et al, US 6,192,040. Hereinafter referred to as Miya and Jalloul respectively.

Regarding claim 1, with reference figures 2 and 3, Miya discloses a method in which pilot symbols are provided comprising a first set of pilot symbols through a plurality of pilot channels (codes 2-codes m) (figure 2), each channel being dedicated to one mobile user, and simultaneously providing a second set of pilot symbols in a mobile through one common control channel (pilot channel 101, and code 1, figure 2) (claimed simultaneously providing a second set of pilot symbols through at least one common control channel). Miya further discloses pilot code 1 is detected and combined with the other received pilot symbols (see unit 307 and 313 of figure 3) at a mobile station to

provide coherent detection, see figure 3 and 5, column 5, lines 46-67 and column 6, lines 1-11. (Claimed combining the first and second sets of pilot symbols).

While Miya specify combining the received pilots for coherent detection of received signals, it doesn't specify using the combination for estimating the channel impulse response.

However, Jalloul discloses channel estimation (claimed channel impulse response) based on combining received plurality of pilot symbols of respective plurality of channels, see Abstract, and column 4 lines 1-17. It would have being obvious to a person of ordinary skill in the art, at the time the invention was made to combine the received symbols of Miya in a similar fashion as taught by Jalloul for the determination of the channel estimate (claimed channel impulse response) along the coherent detection so that accurate channel estimation can be made. The advantage would be the improvement in Miya's coherent detection given more accurate channel estimates.

Regarding claim 2, with reference to figure 2, code 1 pilot channel is a broadcast channel, because code 1 is commonly transmitted to each subscriber unit. (claimed common channel is a broadcast channel).

Regarding claim 10, with reference figure 3, Miya discloses a mobile for use in a code division multiple access mobile radio telecommunications network comprising a dedicated pilot channel circuitry 311 to receive pilot symbols on a dedicated pilot channel (code 2, figure 2) (claimed first receiving means to receive pilot symbols on a dedicated pilot channel), communication channel circuitry 303 to receive pilot symbols on a common communication channel (channel having code1, figure 2) (claimed second

receiving means to receive pilot symbols on a common pilot channel), the mobile station having a correlation circuit 313 for combining the received pilot symbols (Examiner interpreted the correlation circuit 313 receiving the output from the unit 307 as being the claimed combining means for combining the received pilot symbols), detection circuit 314 for receiving the output of correlation circuit 313 and for making coherent detection, see column 5, lines 46-57 and column 6, lines 26-37 and column 6, lines 26-32. (Claimed providing an output to coherent detection means (by the estimation means)).

Miya doesn't explicitly disclose having channel estimation means connected to the combining means.

However, Jalloul discloses channel estimation filter (figure 4) (claimed channel estimation means) that is used provide a channel estimates for combined pilot symbols. See column 4 lines 1-17, and column 5, lines 12-18. It would have being obvious to a person of ordinary skill in the art, at the time the invention was made to provide the combining means of Miya with a form of estimation means as taught by Jalloul so that accurate channel estimation can be made along Miya's coherent detection. The advantage would be the improvement in Miya's coherent detection given more accurate channel estimates.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miya in view of Jalali, US (6,154,659). Hereinafter referred to as Jalali.

Regarding claim 7, with reference figures 1, 2, 3 and 5, Miya discloses code division multiple access mobile radio telecommunications network comprising a plurality of mobile stations (figure 3 show only one mobile station for illustration purpose only), each mobile station have a dedicated pilot channel (channel 1, figure1), spread code and spread circuitry (110, 111,..) for supplying pilot symbols to the dedicated pilot channel (s), (claimed first pilot symbol generation means arranged to supply pilot symbols to the dedicated pilot channels), a pilot channel 101 circuitry for supplying a pilot code that is broadcast to all the mobile stations along with transmission data (1), see figure 1, (claimed second pilot symbol generation means arranged to supply to at least one common control channel dedicated pilot symbols embedded between data symbols broadcast by the common control channel), Miya further discloses that the mobile station having a radio reception unit 302 for receiving the pilot symbols in the dedicated pilot channel and the common control channel (unit 303 and 311 of figure 3), in addition Miya discloses a correlation circuit 313 for combining the received pilot symbols (Examiner interpreted correlation circuit 313 receiving the output of the unit 307 of being the claimed combining means for combining the received pilot symbols), detection circuit for receiving the output of correlation circuit 313 and for making coherent detection, see column 6, lines 26-32. (Claimed channel estimation means to receive the combined pilot symbols and coherent detections means), the output of the coherent detection circuitry is output to the binary decision circuit that used in the determination of data reception, see column 5,lines 46-57 and column 6, lines 26-37.

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(Claimed coherent means arranged to vary at least one property of the mobile in accordance with the output of the channel estimation means).

As to claim 7, the difference between the teaching of Miya and claims 7 is that Miya doesn't disclose that the communication system comprise a plurality of base stations.

As to claim 8, the difference between the teaching of Miya and claims 8 is that Miya doesn't specify each mobile is arranged to send to an associated base station information relating to the quality of pilot symbols received on its dedicated pilot channel, and each base station is arranged to vary the energy of the pilot symbols accordingly.

However, Jalali discloses transmitting power control command from a mobile to its associated base station instructing the base station to increase or decrease its transmit power a predetermined amount based on estimated symbol-energy-to-noise-density (the symbol-energy-to-noise-density is equated with the claimed information relating to the quality of pilot symbols). See column 3, lines 15-33, and figure 5.

It would have being obvious to a person of ordinary skill in the art, at the time the invention was made to incorporate the power commands transmission by the mobile stations of Miya to the base stations using the teaching of Jalali to improve the quality of communications between the base stations and the mobiles units by recognizing the benefit of controlling the transmission power versus the available noise in a manner to increase the bandwidth capacity of each base station (Jalali, column 1, lines 49-57) by providing the right amount of transmission power that is required for each

communication channel to keep the interference level low enough for each and every mobile unit in the mobile network of Miya.

7. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miya in view of Jalloul as applied to respective claims 1 and 2 above, and further in view of Jalali.

Regarding claims 5 and 14, Miya in view of Jalali discloses all the limitations of claims 5 and 14 as discussed above with reference to claims 1 and 2, except they do not specify transmitting from a mobile to base station information relating to quality of received pilot symbols, the base station then varies the energy associated with the set of pilot symbols.

However, Jalali discloses transmitting power control command to the base station instructing the base station to increase or decrease its transmit power a predetermined amount based on estimated symbol-energy-to-noise-density. See column 3, lines 15-33.

It would have being obvious to a person of ordinary skill in the art, at the time the invention was made to incorporate the power commands teaching of Jalali in the system of Miya in view of Jalloul so to improve the quality of communications between the base station and the mobiles units by recognizing the benefit of controlling the transmission power versus the available noise in a manner to increase the bandwidth capacity of the mobile system (Jalali, column 1, lines 49-57) by providing the right

amount of transmission power that is required for each communication channel to keep the interference level low enough for each and every mobile unit in the mobile network.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Teder et al, US 5,544,156; Brink US 6,535,502; Dabak et al, US 20040252796A1; Song, US006721299B1; Abeta et al, US006647003B1; Lunby et al, US006393010B1; Miya, US006370131B1; Blessent et al, US006304563B1; and Bar-Ness, US006137785A

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AHMED ELALLAM
Examiner
Art Unit 2668
October 3, 2005

A handwritten signature in black ink, appearing to read "Chieh M. Fan", with a stylized flourish at the end.

**CHIEH M. FAN
PRIMARY EXAMINER**